

C L A I M S

1. A data transmitter characterized by
2 comprising:
3 a plurality of integrated circuits each having
4 at least one input/output circuit; and
5 a transmission line which connects to the
6 input/output circuits of said integrated circuits and
7 has an element that changes an effective reactance per
8 unit length depending on at least one of a signal
9 voltage and a signal current.

2. A data transmitter according to claim 1,
2 characterized in that said transmission line is formed
3 at least in or on a printed wiring board.

3. A data transmitter according to claim 1,
2 characterized in that said integrated circuits and said
3 transmission line are formed on a single printed wiring
4 board.

4. A data transmitter according to claim 1,
2 characterized in that said transmission line comprises
3 a grounded ground conductor,
4 a signal conductor which receives a signal
5 voltage between the ground conductor and the signal
6 conductor, and
7 an insulating material which contains the
8 element and insulates the signal conductor and the
9 ground conductor from each other.

5. A data transmitter according to claim 4,

2 characterized in that the element includes one of a
3 dielectric and a magnetic substance.

6. A data transmitter according to claim 5,
2 characterized in that the dielectric exhibits a
3 nonlinear relationship between an electric field and
4 dielectric polarization generated in the dielectric.

7. A data transmitter according to claim 6,
2 characterized in that the dielectric is at least one of
3 lead zirconate titanate, bismuth strontium tantalate,
4 ferroelectric, and liquid crystal.

8. A data transmitter according to claim 5,
2 characterized in that the magnetic substance exhibits a
3 nonlinear relationship between a magnetic field and
4 magnetization generated in the magnetic substance.

9. A data transmitter according to claim 8,
2 characterized in that the magnetic substance is at least
3 one of NiZn ferrite and sendust.

10. A data transmitter according to claim 4,
2 characterized in that
3 the ground conductor forms a plurality of
4 parallel-arrayed closed conduits,
5 the insulating material fills each closed
6 conduit, and
7 the signal conductor is arranged in each
8 insulating material.

11. A data transmitter according to claim 1,
2 characterized in that a maximum value of a change

3 component in the effective reactance per unit length
4 that changes depending on at least one of the signal
5 voltage and the signal current in said transmission line
6 is not smaller than a value of a fixed component
7 independent of the signal voltage and the signal current.

12. A data transmission line characterized by
2 comprising an element which changes an effective
3 reactance per unit length depending on at least one of a
4 signal voltage and a signal current.

13. A data transmission line according to
2 claim 12, characterized by comprising:
3 a grounded ground conductor;
4 a signal conductor which receives a signal
5 voltage between said ground conductor and said signal
6 conductor; and
7 an insulating material which contains the
8 element and insulates said signal conductor and said
9 ground conductor from each other.

14. A data transmission line according to
2 claim 13, characterized in that the element includes one
3 of a dielectric and a magnetic substance.

15. A data transmission line according to
2 claim 14, characterized in that the dielectric exhibits
3 a nonlinear relationship between an electric field and
4 dielectric polarization generated in the dielectric.

16. A data transmission line according to
2 claim 15, characterized in that the dielectric is at

3 least one of lead zirconate titanate, bismuth strontium
4 tantalate, ferroelectric, and liquid crystal.

17. A data transmission line according to
2 claim 14, characterized in that the magnetic substance
3 exhibits a nonlinear relationship between a magnetic
4 field and magnetization generated in the magnetic
5 substance.

18. A data transmission line according to
2 claim 17, characterized in that the magnetic substance
3 is at least one of NiZn ferrite and sendust.

19. A data transmission line according to
2 claim 13, characterized in that
3 said ground conductor is formed at least in or
4 on a printed wiring board,
5 said insulating material is arranged in the
6 printed wiring board, and
7 said signal conductor is arranged in said
8 insulating material.

20. A data transmission line according to
2 claim 13, characterized in that
3 said ground conductor and said signal
4 conductor are formed apart from each other on a printed
5 wiring board, and
6 said insulating material is arranged between
7 said ground conductor and said signal conductor on the
8 printed wiring board and joined to said ground conductor
9 and said signal conductor.

21. A data transmission line according to
2 claim 12, characterized in that a plurality of data
3 transmission lines are parallel-arrayed.

22. A data transmission line according to
2 claim 13, characterized in that
3 said ground conductor forms a plurality of
4 parallel-arrayed closed conduits,
5 said insulating material fills each closed
6 conduit, and
7 said signal conductor is arranged in each
8 insulating material.

23. A data transmission line according to
2 claim 12, characterized in that a maximum value of a
3 change component in the effective reactance per unit
4 length that changes depending on at least one of the
5 signal voltage and the signal current is not smaller
6 than a value of a fixed component independent of the
7 signal voltage and the signal current.

24. A data transmission method characterized
2 by comprising the steps of:
3 preparing a transmission line whose effective
4 reactance per unit length changes depending on at least
5 one of a signal voltage and a signal current; and
6 transmitting a signal between a plurality of
7 integrated circuits via the transmission line.

25. A data transmission method according to
2 claim 24, characterized in that the transmitting step

- 3 comprises the step of generating a nonlinear wave
- 4 corresponding to the signal in the transmission line.